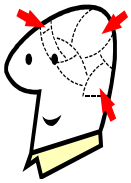
Space Nutrition

Volume 3 | Got Nutrition? | Issue #4

Nerves of steel



Have you ever spun yourself around to make yourself dizzy? The nervous system (nerves, brain, eyes, and inner ear) is affected when you spin around. This system is also affected by lack of gravity. The Neurosciences Laboratory at the Johnson Space Center investigates the effects of spaceflight on the nervous system. "Neuro-" comes from "neuron," the Greek word for nerve. "Neuron" is also an English word for nerve cell. The nervous system controls all actions of the muscles, including those that result in movements of the eyes, head, and body. Scientists and engineers in the Neurosciences Laboratory measure changes in what the eye sees, what the brain tells the muscles to do, and how the muscles respond to this information before and after spaceflight.

Curiosity Corner

Rachel from Pennsylvania asks,
"Is NASA going to build another space shuttle? Are you going to send experiments up to space and if so, what is their purpose?"

NASA is working hard to prepare the Shuttle fleet to fly again. We learned a lot from the investigation of the Columbia tragedy, and engineers are finding ways to modify the Shuttles to make them safer. Although NASA will likely not build another Shuttle, in the future a new vehicle of some kind will allow us to keep exploring beyond the Earth's surface

We continue to work on Earth-based experiments right now, and we hope to get to fly experiments again as soon as possible. You'll read about them first in the Space Nutrition newsletter!

Send your comments or questions to:

Space Nutrition Newsletter
Nutritional Biochemistry Laboratory
Mail Code SK3
NASA - Johnson Space Center
Houston, TX 77058

Eating nutritious food is important to help you grow strong muscles and bones, and to keep you healthy throughout your life. Like it or not - eating is something you really can't live without, and eating right can help determine the quality of your life. The main job here at NASA's Nutritional Biochemistry Laboratory is to determine how much of each nutrient (vitamins, minerals, calories) astronauts need to eat while they are in space. We have a set of recommendations for what crewmembers should eat - but then we also need to check to see if the body is getting enough (or too much) of each nutrient.

How do we know if the body is getting the right nutrients? Keeping track of what crewmembers eat is part of the process. We do this with a computerized questionnaire, which the astronauts on the International Space Station fill out once a week. But knowing what they eat is only half of the equation. We also collect blood and urine samples before and after flight, and can measure chemicals that tell us how well the body is processing each nutrient. The level of each vitamin and mineral can be determined, and we can measure other biochemicals that tell us about muscle, bone, kidneys, and more! By doing this, we can compare the relationship between what the astronaut ate, and how well the body is using each nutrient. Then we can estimate whether they are getting enough, too little, or too much of each nutrient.

Did you know?

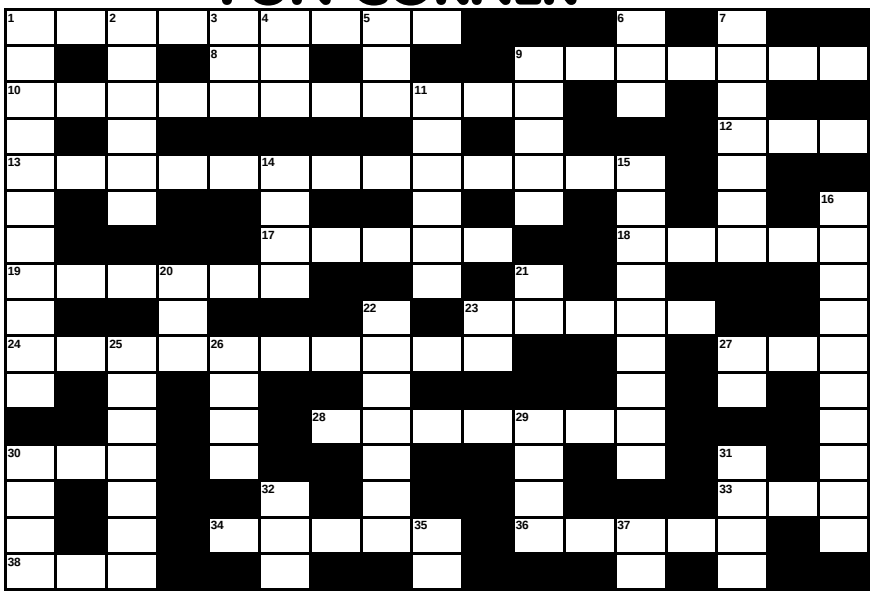
- As we study more astronauts, we learn a little more about the effects of space flight on the body. Over time, we can learn enough to recommend diets that meet needs for specific nutrients, and the foods can be modified (or new foods can be designed) so they provide the right balance of nutrients to the crew. It's easy to see why nutrition is as important to your health as it is to the astronauts!

- Michael Foale is the newest US crew member on the International Space Station (ISS). He is the Commander of the Expedition 8 crew, which also includes cosmonaut Alexander Kaleri. They launched from Russia last month - and will be on the ISS until next spring! What do you think Thanksgiving on ISS would be like?

- November 20 marks the 5th anniversary of the launch of the first ISS module! The first module was named Zarya (the Russian word for sunrise).

- The first crew went to ISS in 2000. Since that time, we have had a continued human presence in orbit. From a food and nutrition perspective - more than 10,000 meals have been eaten on orbit, and over 15,000 pounds of food have been sent to keep the astronauts healthy! That's a pretty big shopping cart!

FUN CORNER



Across

1 Vitamins, minerals, protein
8 California
9 Hot air _____
10 Measure of heat
12 Brand _____
13 _____ Space Station
17 Command
18 Musical _____
19 "Failure is not an _____"
23 Apple or orange
24 Measurement
27 Lawyers' exam
28 Scheduled
30 Medical Assessment Testing
33 A long time _____
34 Russian ISS module
36 Sweet thing
38 Solar system light source

Down

1 _____ Biochemistry Laboratory
2 Key ketchup ingredient
3 Frozen water
4 Hearing organ
5 Young child
6 Everything
7 Join
9 Lima and pinto
11 _____ States
14 Light, or inert gas
15 Latitiude and _____
16 Lifelong dream
20 Candy, "Mike and ____"
21 Either ____, neither nor
22 Good nutrition keeps us _____
23 Full-time
25 Mir space _____
26 Chair or stool
27 To _____ or not to _____
29 Almonds and pecans
30 Red planet
31 Short for carbohydrate
32 Uncooked
35 Opposite of p.m.
37 Ready, set, _____

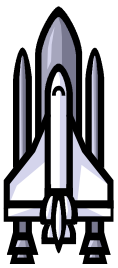
Word of the Month

Neurovestibular

Can you guess what this word means? Look for the meaning of the "Word of the Month" in the next issue of Space Nutrition.

Hey kids - Check out NASA Connect to learn more about nutrition, exercise, and space:
http://connect.larc.nasa.gov

More cool NASA links:
http://www.nasa.gov/audience/forkids/index.html
http://www.spaceflight.nasa.gov



Check out the Nutritional Biochemistry Laboratory's website for more information about nutrition and space.
http://haco.jsc.nasa.gov/biomedical/nutrition/